Abstract

A Computer-Aided Engineering method for predicting the acoustic signature of vibrating structures.

The invention relates to Computer-Aided Engineering (CAE) systems. It concerns a new methodology to predict (1) the acoustic radiation characteristics of a mechanical structure, under operational conditions, and (2) to identify the sources on a vibrating structure from measured sound pressure levels in the field. The methodology is based on a new approach to evaluate acoustic transfer vectors (ATV), based on the reciprocity principle and combined with interpolation techniques. The same methods are applicable to other vibrating energy forms which can be described by the wave equation such as electromagnetic waves.

(Fig. 5)